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June 27, 2007

Mr. Michael Romero
Oregon Department of Environmental Quality – NW Region
2020 SW Fourth Avenue, Suite 400
Portland, Oregon 97201

RE: Depth-Discrete Vertical Groundwater Sampling Plan
Kinder Morgan Linnton Terminal,
Portland, Oregon

Dear Mr. Romero:

DELTA

Delta Environmental Consultants, Inc. (Delta), on behalf of Kinder Morgan Liquids Terminals, LLC. (KMLT), has prepared this *Depth-Discrete* Vertical *Groundwater Sampling Plan* to delineate the vertical extent of dissolved petroleum constituents upgradient of the petroleum recovery system at the KMLT bulk fuel Linnton Terminal located at 1440 NW St Helens Road, Portland, Oregon (Site, Figure 1). The recovery system was installed in 2003 as part of the Interm Remedial Action Measure (IRAM) activities to limit the seepage of separate-phase hydrocarbon (SPH) through the seawall to the Willamette River. Seepage is controlled through hydraulic containment of localized groundwater flow from five recovery wells.

To delineate the vertical extent of dissolved constituents, Delta proposes collecting a minimum of three depth-discrete groundwater samples at a three locations (HP-1, HP-2, and HP-3, Figure 2). Sample locations were selected to represent areas where SPH has been historically measured upgradient of the IRAM (HP-1) and outside the influence of the IRAM (HP-2, and HP-3). Sample depths were chosen based on the depths of existing dissolved hydrocarbon data from monitoring wells and IRAM pump depths. Groundwater samples will be collected at approximate 10 foot intervals beginning 30 feet and extending an approximate depth of 50 feet below ground surface (bgs). Exact sampling depths will be determined by an onsite geologist based on subsurface conditions. Chemical analysis of groundwater samples will be conducted by Test America of Beaverton, Oregon and will target site-specific and Portland Harbor contaminants of potential concern (COPCs). An attempt will be made to reach appropriate laboratory method detection limits (MDLs) for comparison to Screening Level Values (SLVs) presented in Table 3-1 of the Joint Source Control Strategy (JSCS; 2005).

The proposed scope of work presented below updates Delta's November 17, 2005 IRAM assessment work plan and was prepared to address the DEQ concern that the vertical extent of dissolved petroleum constituents has not been adequately addressed near the IRAM recovery system.

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PROPOSED GEOPROBE AND GROUNDWATER SAMPLING

Scope

The scope of the *Depth-Discrete Vertical Groundwater Sampling Plan* includes:

- Installation of a 3¼ -inch diameter steel casing to seal off the horizon that contains SPH;
- Advancement of Geoprobe equipment at each location (HP-1, HP-2, HP-3);
- Discrete groundwater sampling at a minimum of three depths (30', 40', 50') at each location.
- Analysis of samples for site specific COPCs; and
- Data evaluation.

Pre-field Activities

In accordance with 29 CFR 1910.120, Delta will prepare a site-specific Health & Safety Plan (HASP) prior to the initiation of field activities. The HASP will identify potential site hazards, the route to the nearest emergency medical services, and appropriate levels of Personal Protective Equipment (PPE) for Delta and subcontractor personnel. At least 48 hours before field activities, the Oregon Utility Notification Center will be notified and public utilities in the area of the site will be clearly marked. In addition, Delta will contract a private utility location firm to clear the proposed boring locations. To avoid subsurface utilities, the proposed locations will be cleared to a depth of 5 feet using an air knife or equivalent prior to drilling.

Geoprobe Activities

A minimum of three depth discrete samples (30', 40', and 50') will be collected at each geoprobe location. The top 27 feet will be cased off and sealed to inhibit downward migration of shallow hydrocarbon impacted groundwater and SPH that is likely present.

Delta proposes to advance the 3¼ -inch steel casing to a depth of 27 feet bgs using a Geoprobe rig. Following installation, the steel casing will be filled with grout slurry. Prior to emplacement a representative sample of the slurry will be sampled to determine whether there are any trace background concentrations of COPCs in the slurry. Hydropunch™ equipment will be advanced through the slurry to an approximate depth of 30 feet bgs where the first discrete groundwater sample will be collected. Two additional discrete groundwater samples will be collected at approximately 40 feet bgs and 50 feet bgs. The screened interval of the Hydropunch™ will be minimized to the narrowest interval possible (generally two-feet). Final casing installation and sampling depths will be subject to change based on subsurface conditions encountered during field activities.

Groundwater Sampling & Analysis

Depth discrete groundwater samples will be collected at location HP-1, HP-2, and HP-3. Groundwater samples will be submitted to Test America Laboratories of Beaverton, Oregon, under strict COC protocols. The collected groundwater samples will be analyzed for the following site-specific COPCs:

Analysis	Method	MDL (µg/l)
TPH-G	EPA Method NWTPH-Gx	--
TPH-D/O	EPA Method NWTPH-Dx	--
PAHs	EPA Method 8270 SIM	0.05 – 0.005
PCBs	EPA Method 8082	0.5 – 0.1
Phthalates	EPA Method 8270-SIM	0.526
Total Metals		
Aluminum	EPA Method 6020	0.977
Arsenic	EPA Method 6020	0.028
Cadmium	EPA Method 6020	0.0571
Chromium	EPA Method 6020	0.0968
Copper	EPA Method 6020	0.107
Lead	EPA Method 6020	0.0443
Manganese	EPA Method 6020	0.272
Mercury	EPA Method 6020	0.338
Thallium	EPA Method 6020	0.0145
TSS	EPA Method 160.2	--

An attempt to reach appropriate MDLs for comparison to JCSC SLVs will be made by the laboratory handling the analysis.

Data Evaluation and Reporting

Analytical results of the investigation will be used to delineate the vertical extent of dissolved petroleum constituents and other COPCs upgradient of the recovery system. Analytical results, data evaluation, and any recommendations resulting from this investigation will be summarized in a letter report.

Schedule

Delta anticipates that drilling activities will be conducted in July or August 2007, with the proposed scope of work taking approximately 3 days to complete in the field. Delta will submit the report summarizing the results and recommendations from this investigation within approximately 45 days following completion of fieldwork.

If you have any questions regarding the contents of this sampling plan, please do not hesitate to contact us at (503) 639-8098.

Sincerely,

Christopher Sheridan
Project Geologist

Timothy Browning, R.G.
Project Manager

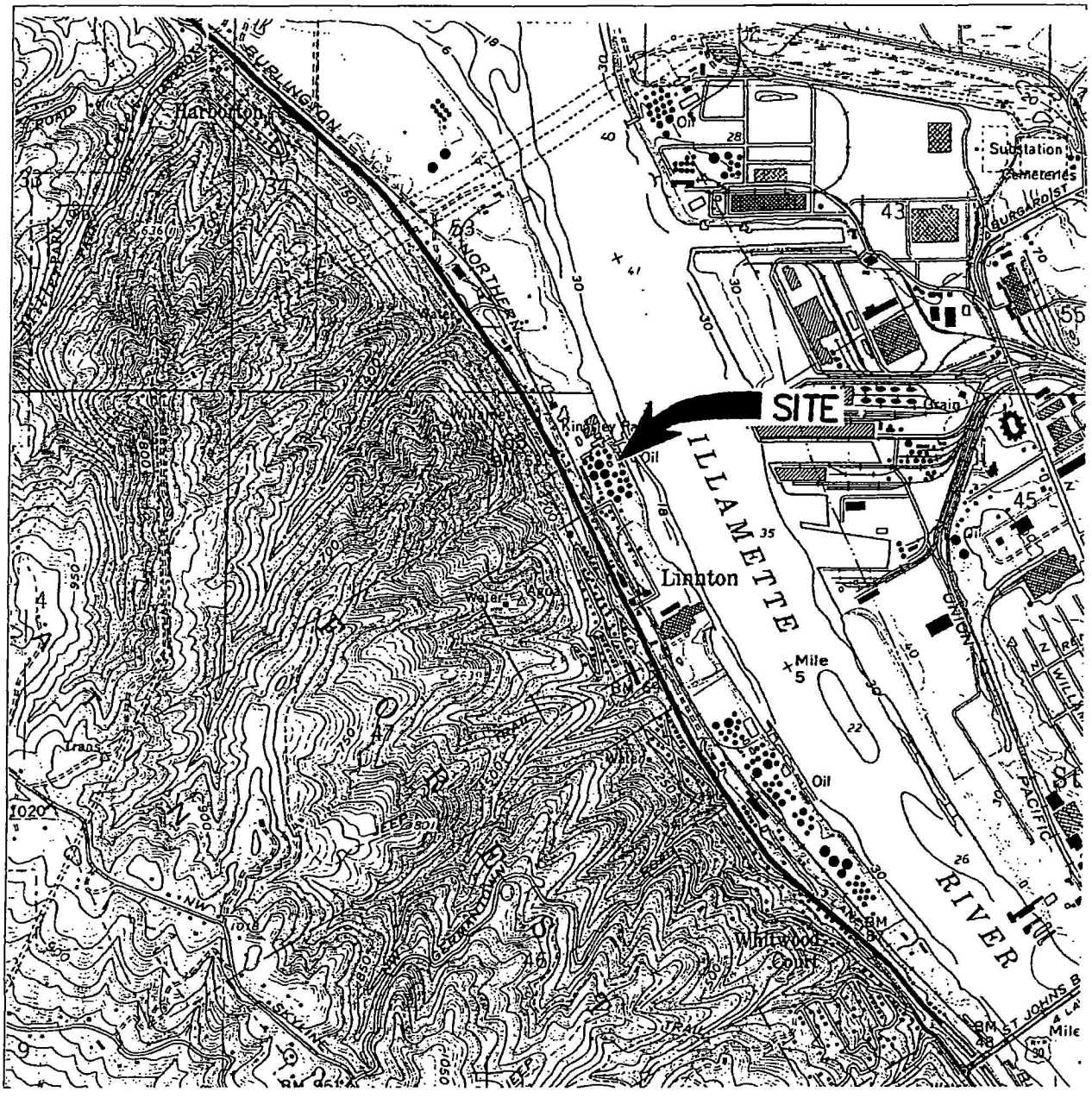
cc. Robert Truedinger, KMEP

Attachments: Figure 1 – Site Location Map
Figure 2 – Proposed Hydropunch Location
Appendix A – Geoprobe Field Procedures

REFERENCES

Portland Harbor Joint Source Control Strategy (JSCS), 2005. Department of Environmental Quality and U.S. Environmental Protection Agency. December, 2005.

FIGURES



REFERENCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP
LINNTON, OREGON, 1961
PHOTOREVISED 1984

SCALE 1 : 25,000

QUADRANGLE LOCATION

North

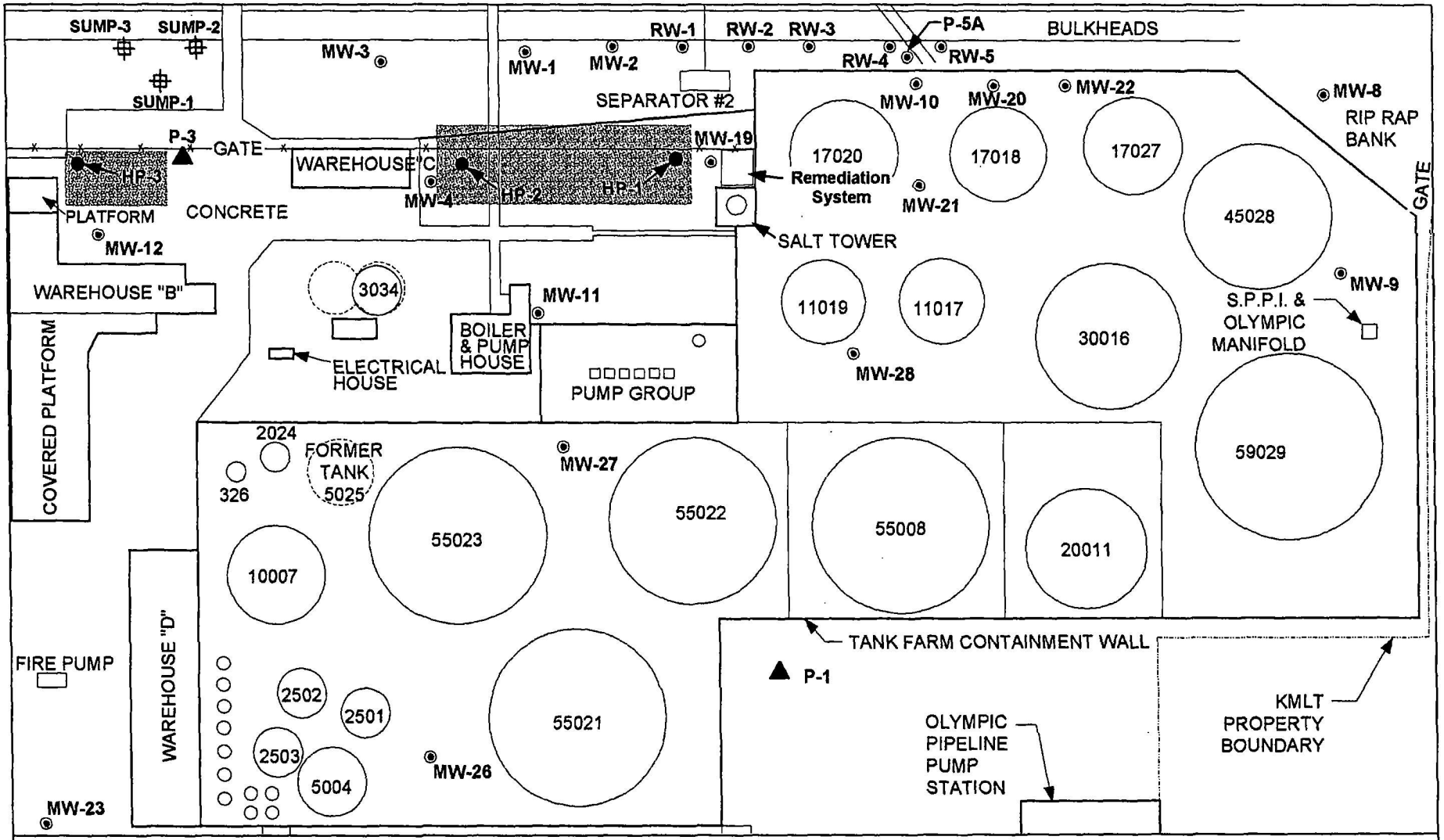
FIGURE 1

SITE LOCATION MAP

Kinder Morgan Liquid Terminals LLC - Linnton Terminal
11400 NW St. Helens Road
Portland, Oregon

PROJECT NO. PTKM-010-11	DRAWN BY CRF
FILE NO.	PREPARED BY CRF 4/4/07
REVISION NO.	REVIEWED BY

DELTA



LEGEND

HP-1 ⊗ Proposed Vertical Assessment Soil Boring Location and Designation

MW-1 ◉ Groundwater Monitoring Well Location and Designation

0 80 FT

APPROX. SCALE

FIGURE 2

PROPOSED VERTICAL ASSESSMENT BORING LOCATION

KINDER MORGAN LIQUID TERMINALS LLC
LINNTON TERMINAL
11400 NW ST. HELENS ROAD
PORTLAND, OREGON

PROJECT NO. PTKM-010-8	DRAWN BY CRF
FILE NO. Vertical Assessment	PREPARED BY CRF 6/25/07
REVISION NO.	REVIEWED BY

DELTA

APPENDIX A

GEOPROBE FIELD PROCEDURES

PROCEDURES

- The sampling tool will be advanced using a truck-mounted push probe rig equipped with five-foot sections of two-inch nominal outside-diameter rods. The rods and samplers will be decontaminated with a hot water pressure washer before use in the borehole. Decontamination water will be contained in a trailer during washing episodes and immediately pumped into Oregon Department of Transportation (ODOT) approved 55-gallon open-head drums. All downhole equipment will be steam-cleaned prior to the drilling of each new boring. The push probe equipment and sampling tools will be decontaminated with a non-phosphate detergent solution and clean water rinse.
- The field personnel maintained a field log during drilling operations. All pertinent information regarding drilling and sampling will be recorded on the log.
- Any cuttings generated during drilling of the boring will be collected and contained in Department of Transportation (DOT) approved, open-top, steel 55-gallon drums. The drill cuttings will be stored on site, pending receipt of the sample analytical results. Soils will be properly disposed of as required. The soil boring will be abandoned by filling them with bentonite to create a seal.

Groundwater Sampling

- Groundwater samples will be collected by advancement of push-probe technology to the required depth. A screened interval will be exposed at the desired depth from which groundwater will be collected via bailer or peristaltic pump. Groundwater sampled from each depth will be transferred directly into the appropriate sample bottles.

Sample Documentation and Custody

Strict chain-of-custody procedures will be followed for each sample.

The following information will be included on the chain-of-custody form:

- Sample container type and container number.
- Date and time of collection.
- Sample collection location(s).
- Signatures of sampler, submitter, and receiver of samples.
- Date and time samples will be received by laboratory.
- Total number of samples received.
- Laboratory analyses requested for each sample.
- Requested laboratory turn-around time.

Decontamination Procedures

Decontamination procedures will be used on all dedicated and non-dedicated sampling equipment that could potentially contact and cross-contaminate other materials. This included personal protective equipment, sampling equipment, and sample containers.
Materials that will be used in the decontamination process included:

- Liquinox nonphosphate detergent
- Tap water
- Teflon squirt bottles
- Bailer brushes and cleaning tubs

Investigation-Derived Waste

Personal protective clothing, development water, purge water, and decontamination solution/solvents will be the types of waste generated during the course of this project.
Potentially hazardous waste will be contained within DOT approved 55-gallon steel drums and stored on site (with the owner's permission), pending receipt of analytical data and determination of final disposition.
Each drum containing investigation-derived waste will be labeled with the following information:

- Site name
- Sequential drum number
- Date of collection
- Source and type of waste

All such information will be recorded in field log books, and a final inventory of all investigation-derived waste, including quantities, storage methods, disposition, and dates, will be compiled at the completion of the project.

Soil and water containing concentrations of petroleum constituents will be disposed of at an off-site site permitted to accept and treat soil containing petroleum constituents. All necessary permits will be obtained prior to transporting, treating, or disposal of soil and/or water.

Field Notebook

In addition to sample identification numbers and chain-of-custody records, a field notebook will be maintained by Delta personnel to provide a daily record of significant events, observations, and measurements during field investigations. This record included a sample collection record, field measurements, personnel, and other pertinent information. All entries in the field notebooks will be made in ink, signed, and dated. The field notebooks will be kept as a permanent record.